

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF IOWA
(CENTRAL DIVISION)

1	LARRY ZUBROD, Individually)	
2	and as Administrator for)	
3	the ESTATE OF MICHAEL)	
4	ZUBROD and CHERYL ZUBROD,)	
5	Individually and as)	Case No.
6	Administrator for the)	6:15-cv-02065-LRR
7	ESTATE OF MICHAEL ZUBROD,)	
8	Plaintiffs,)	
9	vs.)	DEPOSITION OF
10	SHAYNE HOCH, ISAAC SHORT,)	SHAYNE HOCH
11	and JOHN SMITH, in each)	
12	man's individual capacity)	
13	as a Law Enforcement)	
14	Officer for the Worth)	
15	County Sheriff's Office;)	
16	SHERIFF JAY LANGENBAU, in)	
17	his individual capacity,)	
18	and WORTH COUNTY,)	
19	Defendants.)	

THE DEPOSITION OF SHAYNE HOCH, taken
before Brittney L. Sposeto, Certified
Shorthand Reporter of the State of Iowa,
commencing at 9:05 a.m., May 5, 2016, at the
Worth County Courthouse, Northwood, Iowa.

Reported by: Brittney L. Sposeto, CSR

1 shot?

2 A. Yes.

3 Q. And you, based on your training and
4 experience, know that if both of the probes
5 are in and you go to drive stun you can still
6 do the incapacitation; right?

7 A. Yes, hit the -- you try getting the
8 motor nervous system versus just a sensory.

9 Q. Did Michael ever pull those barbs out,
10 to your knowledge?

11 A. No.

12 Q. Were they in there the entire time, to
13 your knowledge?

14 A. Yes.

15 Q. And then what happened?

16 A. That's when I -- in one of the trainings
17 I had, to do a drive stun, when you're going
18 hands-on and there's more than multiple
19 officers there, they said don't even take the
20 cartridge out, just shoot -- shoot the two
21 probes in and then bring the Taser up to do a
22 drive stun. But with the wires connected, it
23 would actually work as the full -- both
24 muscle groups, which will hit the motor -- or
25 motor nervous system. Then they should lock

1 up. So that's what -- in my mind, that's
2 what I was trying to do.

3 Q. So you were using the barrel of the
4 Taser as a second probe, because the other
5 two were so close together --

6 A. Yes.

7 Q. -- to get the muscle groups in between?

8 A. Yes.

9 MR. PALMER: You're doing fine.
10 Wait till he's finished.

11 THE WITNESS: All right. I'm
12 sorry.

13 MR. PALMER: That's okay. Just
14 take your time.

15 BY MR. BROWN:

16 Q. So when you shot that, were you able to
17 place the barrel, for lack of a better word,
18 of the Taser on Michael to get the
19 incapacitation effect?

20 A. I -- at that point I put the Taser up to
21 serve as the drive stun to complete the
22 circuit, and the second I put it on there, he
23 reached with his arm and pulled it off him.
24 I put it on his -- would have been right back
25 below the shoulder blade, I believe. I'm not

1 before, and you said for three or
2 four seconds; right?

3 A. Yes.

4 MR. PALMER: I'm going to object to
5 form of the question, misstates his
6 testimony.

7 Q. Okay. But you remember that?

8 A. Yes.

9 Q. You remember how you said it was the
10 most painful experience you've ever had in
11 your entire life; right?

12 A. I said it was a really serious
13 experience, yes.

14 Q. Do you know how many seconds that
15 Michael was exposed to Tasers, electrocution
16 by your Taser?

17 A. I have no idea.

18 Q. At most, I mean, if you added up the
19 number of cycles and seconds -- you haven't
20 done that yet?

21 A. I don't believe he was tasered
22 continuously with every one of those.

23 Q. You don't know if he wasn't, though;
24 right?

25 A. Well, when it's away from him, obviously

1 it's not.

2 Q. Okay. If between two Tasers it was
3 potentially fifty-three seconds of taserings
4 that Michael experienced, do you have any
5 reason to dispute the math?

6 A. Not the math.

7 MR. PALMER: Object to form and
8 foundation.

9 Q. Okay. You had on yours a five-second
10 cycle, a five-second cycle, a five-second
11 cycle, a five-second cycle, a seven-second
12 cycle -- which, by the way, means pull the
13 trigger twice; right?

14 A. I don't know.

15 Q. You don't know how to get a seven-second
16 cycle?

17 A. I don't.

18 Q. You had a six-second cycle, you had a
19 five-second cycle, you had a five-second
20 cycle, you had a five-second cycle, and you
21 had a five-second cycle. It took me two
22 breaths to say all those taserings. Any
23 reason to dispute that that was the number
24 that is on your Taser log between 23:47:35
25 and 23:50:50, within approximately three or

1 so minutes?

2 MR. PALMER: What's the --

3 A. I understand the Taser log shows that.

4 Q. Okay. Clearly exceeds fifteen seconds
5 of lab testing; right?

6 A. Yes.

7 Q. And possibly exceeds the most severe
8 forty-five seconds of lab testing. Would you
9 agree with that?

10 MR. PALMER: Object to the form,
11 foundation.

12 A. That's what it says, yes.

13 Q. There's another warning that talks about
14 cardiac capture. I think we referenced that
15 earlier. CEW exposure in the chest area near
16 the heart has a low probability of inducing
17 extra heartbeats (cardiac capture). In rare
18 circumstances, cardiac capture could lead to
19 cardiac arrest. Is that what you said that
20 Michael died from, by the way?

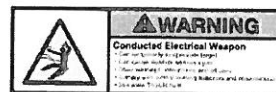
21 A. I believe that's what it said on the --

22 Q. Do you know how quickly a cardiac
23 capture -- how quickly that can happen? Have
24 you ever done any research on that?

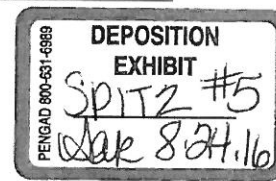
25 A. No.



TASER® Handheld CEW Warnings, Instructions, and Information: Law Enforcement



IMPORTANT SAFETY AND HEALTH INFORMATION



This document presents important safety warnings, instructions, and information intended to minimize hazards associated with the use of TASER International, Inc. (TASER) Conducted Electrical Weapons (CEWs). These instructions and warnings are for your protection as well as the safety of others. **Read the entire document before using a CEW.**

When used as directed in probe-deployment mode, CEWs are designed to temporarily incapacitate a person from a safer distance than some other force options, while reducing the likelihood of death or serious injury. However, any use of force, including the use of a CEW, involves risks that a person may get hurt or die due to the effects of the CEW, physical incapacitation, physical exertion, unforeseen circumstances, or individual susceptibilities. Following the instructions and warnings in this document will reduce the likelihood that CEW use will cause death or serious injury.

These warnings and instructions are effective **March 1, 2013**, and supersede all prior revisions and relevant Training Bulletins. **Immediately distribute this document to all TASER CEW users.** The most current warnings are also available online at www.TASER.com.

1. **Complete training first.** Significant differences exist between different TASER CEW models. Do not use or attempt to use any CEW model unless you have been trained by a Certified TASER Instructor on that particular model.¹
2. **Read and obey.** Read, understand, and follow all current instructions, warnings, and relevant TASER training materials before using TASER CEWs. Failure to do so could increase the risk of death or serious injury to the user, force recipient, or others.
3. **Obey applicable laws, regulations, and agency Guidance.** Use of CEWs must be legally justified and comply with applicable federal, state, and local laws and regulations. The decision to use a CEW in a particular manner or circumstance must follow applicable law enforcement agency Guidance.²

Always follow all current instructions, warnings, and TASER training materials to minimize CEW risks.

This document uses a signal word panel to mark specific warnings:



This signal word panel indicates a **potentially hazardous situation which if not avoided could result in death or serious injury.**

Warnings may be followed by instructions and information to help avoid the hazard and improve CEW safety.

SAFETY INFORMATION: CEW RISKS AND RISK AVOIDANCE



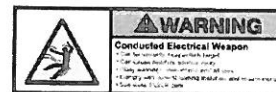
Cumulative Effects. CEW exposure causes certain effects, including physiologic and metabolic changes, stress, and pain. In some individuals, the risk of death or serious injury may increase with cumulative CEW exposure. Repeated, prolonged, or continuous CEW applications may contribute to cumulative exhaustion, stress, cardiac, physiologic, metabolic, respiratory, and associated medical risks

¹ A Certified TASER Instructor is not a TASER agent, but maintains a current TASER instructor certification and complies with TASER's most current training requirements, materials and license agreement. Representations inconsistent with this document made by any Certified TASER Instructor are expressly disclaimed.

² Law enforcement agencies are force experts and are solely responsible for their own Guidance. "Guidance" includes policy, custom, procedure, rule, order, directive, training, continuum, and standard. TASER has no authority to mandate Guidance, set policy, require training, or establish standards of care or conduct.



TASER® Handheld CEW Warnings, Instructions, and Information: Law Enforcement



which could increase the risk of death or serious injury. Minimize repeated, continuous, or simultaneous exposures.

Physiologic and Metabolic Effects. CEW use causes physiologic and/or metabolic effects that may increase the risk of death or serious injury. These effects include changes in blood chemistry, blood pressure, respiration, heart rate and rhythm, and adrenaline and stress hormones, among others. In human studies of electrical discharge from a single CEW of up to 15 seconds, the effects on acid/base balance, creatine kinase, electrolytes, stress hormones, and vital signs were comparable to or less than changes expected from physical exertion similar to struggling, resistance, fighting, fleeing, or from the application of some other force tools or techniques.

Some individuals may be particularly susceptible to the effects of CEW use. These susceptible individuals include the elderly, those with heart conditions, asthma or other pulmonary conditions, and people suffering from excited delirium, profound agitation, severe exhaustion, drug intoxication or chronic drug abuse, and/or over-exertion from physical struggle. In a physiologically or metabolically compromised person, any physiologic or metabolic change may cause or contribute to sudden death.

Stress and Pain. CEW use, anticipation of use, or response to use can cause startle, panic, fear, anger, rage, temporary discomfort, pain, or stress which may be injurious or fatal to some people.

To reduce the risk from CEW exposure:

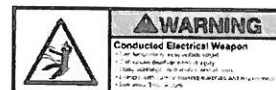
1. **Minimize the number and duration of CEW exposures.** Most human CEW lab testing has not exceeded 15 seconds of CEW application, and none has exceeded 45 seconds. Use the shortest duration of CEW exposure objectively reasonable to accomplish lawful objectives, and reassess the subject's behavior, reaction, and resistance before initiating or continuing the exposure. If a CEW deployment is ineffective in incapacitating a subject or achieving compliance consider alternative control measures in conjunction with or separate from the CEW.
2. **Avoid simultaneous CEW exposures.** Do not use multiple CEWs or multiple completed circuits at the same time without justification. Multiple CEWs or multiple completed circuits at the same time could have cumulative effects and result in increased risks.
3. **Control and restrain immediately.** Begin control and restraint procedures, including during CEW exposure ("cuffing under power"), as soon as reasonably safe and practical to minimize CEW cumulative effects and the total duration of exertion and stress experienced by the subject.
4. **Avoid touching probes/wires during CEW discharge.** Controlling and restraining a subject during CEW exposure may put the CEW user and those assisting at risk of accidental or unintended shock. Avoid touching the probes and wires and the areas between the probes during the electrical discharge.

WARNING Cardiac Capture. CEW exposure in the chest area near the heart has a low probability of inducing extra heart beats (cardiac capture). In rare circumstances, cardiac capture could lead to cardiac arrest. When possible, avoid targeting the frontal chest area near the heart to reduce the risk of potential serious injury or death.

Cardiac capture may be more likely in children and thin adults because the heart is usually closer to the CEW-delivered discharge (the dart-to-heart distance). Serious complications could also arise in those with impaired heart function or in those with an implanted cardiac pacemaker or defibrillator.

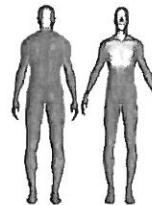


TASER® Handheld CEW Warnings, Instructions, and Information: Law Enforcement



To reduce the risk of injury:

1. **Use preferred target areas.** The preferred target areas (blue) are below the neck area for back shots and the lower center mass (below chest) for front shots. The preferred target areas increase dart-to-heart distance and reduce cardiac risks. Back shots are preferable to front shots when practicable.
2. **Avoid sensitive areas.** When practicable, avoid intentionally targeting the CEW on sensitive areas of the body such as the face, eyes, head, throat, chest area (area of the heart), breast, groin, genitals, or known pre-existing injury areas.



WARNING **Muscle Contraction or Strain-Related Injury.** CEWs in probe-deployment mode can cause muscle contractions that may result in injury, including bone fractures.

WARNING **Higher Risk Populations.** CEW use on a pregnant, infirm, elderly, or low body-mass index person or on a small child could increase the risk of death or serious injury. As with any force option, CEW use has not been scientifically tested on these populations. Use a CEW on such persons **only** if the situation justifies an increased risk.

CEWs in probe-deployment mode can cause muscle contractions resulting in injuries similar to those from physical exertion, athletics, or sports, including hernia rupture, dislocation, tear, or other injury to soft tissue, organ, muscle, tendon, ligament, cartilage, disc, nerve, bone, or joint; or injury or damage associated with or to orthopedic or other hardware. Fractures to bone, including compression fracture to vertebrae, may occur.

These injuries may be more serious and more likely to occur in people with pre-existing injuries, orthopedic hardware, conditions or special susceptibilities, including pregnancy; low bone density; spinal injury; or previous muscle, disc, ligament, joint, bone, or tendon damage or surgery. Such injuries may also occur in drive-stun applications or when a person reacts to the CEW deployment by making a rapid or unexpected movement.

WARNING **Secondary Injury.** The loss of control resulting from a CEW exposure may result in injuries due to a fall or other uncontrolled movement. When possible, avoid using a CEW when secondary injuries are likely.

Loss of control associated with CEW use can have several causes:

- **Seizure.** Repetitive stimuli (e.g., flashing light or electrical stimuli) can induce seizure in some people, which may result in death or serious injury. This risk may be increased in a person with epilepsy, a seizure history, or if electrical stimuli pass through the head. Emotional stress and physical exertion, both likely in incidents involving CEW and other uses of force, are reported as seizure-precipitating factors.
- **Fainting.** A person may experience an exaggerated response to a CEW exposure, or threatened exposure, which may result in fainting or falling.
- **Muscle contraction, incapacitation, or startle response.** CEW use may cause loss of control from muscle contraction, incapacitation, or startle response.

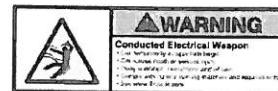
To reduce these risks, consider the person's location before using a CEW. When practicable, avoid using a CEW on a person in the following circumstances unless the situation justifies a higher risk.

When practicable, avoid using a CEW on a person who:

- is on an elevated or unstable surface (e.g., tree, roof, ladder, ledge, balcony, porch, bridge, or stair);
- could fall and suffer impact injury to the head or other area;
- could fall on a sharp object or surface (e.g., holding a knife, falling on glass);
- is less able to catch or protect self in a fall (e.g., restrained, handcuffed, incapacitated, or immobilized);
- has impaired reflexes (e.g., from alcohol, drugs or certain medications);
- is running, in motion, or moving under momentum;



TASER® Handheld CEW Warnings, Instructions, and Information: Law Enforcement



- is operating or riding any mode of transportation (e.g., vehicle, bus, bicycle, motorcycle, or train), conveyance (e.g., escalator, moving walkway, elevator, skateboard, rollerblades), or machinery; or
- is located in water, mud, or marsh environment if the ability to move is restricted.

SAFETY INFORMATION: INJURY OR INFECTION

A CEW may cause injury as a result of the probe or electrical discharge. The nature and severity of these effects depends on numerous factors including the area of exposure, method of application, individual susceptibility, and other circumstances surrounding CEW use, exposure, and after care. Medical care may be required.

WARNING **Eye Injury Hazard.** A TASER probe, electrode, or electrical discharge that contacts or comes close to an eye can result in serious injury, including permanent vision loss. **DO NOT** intentionally aim a CEW, including the LASER, at the eye of a person or animal without justification.

LASER Light Hazard. CEWs use a LASER targeting aid. LASERs can cause serious eye injury, including permanent vision loss. **NEVER** aim a LASER at an aircraft or the operator of an aircraft or moving vehicle.

WARNING **Probe or Electrode Injury, Puncture, Scarring, or Infection Hazard.** CEW use may cause a permanent mark, burn, scar, puncture, or other skin or tissue damage. Infection could result in death or serious injury. Scarring risk may be increased when using a CEW in drive-stun mode. Increased skin irritation, abrasion, mark, burning, or scarring may occur with a CEW with multiple cartridge bays when used in drive-stun or three-point deployment modes.

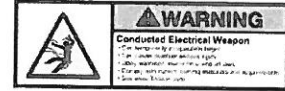
WARNING **Penetration Injury.** The TASER probe has a small dart point which may cause a penetration injury to a blood vessel or internal organ, including lung, bone, or nerve. The probe or dart point (which may detach or break) can puncture or become embedded into a bone, organ, or tissue, which may require immediate medical care, surgical removal, or may result in scarring, infection, or other serious injury.

To reduce the risk of serious or permanent injury:

1. **Provide medical care as needed.** Injury due to penetration of a probe or dart point into a blood vessel, organ, nerve, or bone may require medical care. A probe, dart point, or barb embedded in a sensitive area such as the eye, genitals, breast, neck, throat, or vascular structure may cause serious injury and require medical care. CEW use may cause skin irritation, puncture wound, abrasion, mark, rash, burn, or other scar or infection, which may require medical care and may be permanent. As with any injury of this type, infection or tetanus and resulting complications may occur. In accordance with your agency's Guidance, ensure access to medical care if needed.
2. **Follow agency Guidance for removing probes.** Probe removal may cause injury. Leaving a probe in the body may result in pain or injury. Follow your agency's Guidance and biohazard protocols for probe removal. In the case of embedment, organ or bone penetration, or probe, dart point, or barb detachment, immediate medical care and possible surgical removal may be required.
3. **Follow biohazard protocols.** Use appropriate biohazard protocols including isolation procedures and protective equipment (e.g., gloves, masks, and washing of hands and exposed areas as necessary). Follow your agency's Guidance and appropriate biohazard, waste, and evidence protocols when dealing with biohazards.

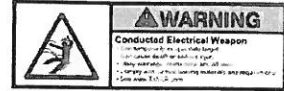
SAFETY INFORMATION: CEW DEPLOYMENT AND USE

WARNING CEWs and cartridges are weapons and as with any weapon follow safe weapon-handling practices and store your CEW securely. Follow practices herein and additional requirements in your agency's Guidance. Failure to follow these warnings may result in death or serious injury to the user or others.





TASER® Handheld CEW Warnings, Instructions, and Information: Law Enforcement



muscle mass; or movement. Some of the factors that may influence the effectiveness of CEW use in effecting or achieving control of a subject include:

- **Subject may not be fully incapacitated.** Even though a subject may be affected by a CEW in one part of his body, the subject may maintain full muscle control of other portions of his body. Control and restrain a subject as soon as possible, and be prepared in case the subject is not fully incapacitated.
- **Subject may recover immediately.** A subject receiving a CEW discharge may immediately regain physical or cognitive abilities upon cessation of the delivered CEW discharge. Control and restrain a subject as soon as possible, and be prepared in case the subject immediately recovers.
- **Drive-stun mode is for pain compliance only.** The use of a handheld CEW in drive-stun mode is painful, but generally does not cause incapacitation. Drive-stun use may not be effective on emotionally disturbed persons or others who may not respond to pain due to a mind-body disconnect. Avoid using repeated drive-stuns on such individuals if compliance is not achieved.
- **Probes may deviate.** CEWs are not precision-aimed weapons. Probe discharge, flight trajectory, and impact location can be affected by numerous factors, including cartridge or probe accuracy; failure of cartridge to properly deploy; strong air movements; user and subject movements; or probe striking subject, clothing, or object with insufficient force or trajectory to penetrate or adhere to subject. Deviations can result in limited or lack of effectiveness due to misses, failure to complete or maintain the electrical circuit, a small probe spread, or failure to deliver a sufficient charge to the subject.
- **CEW or cartridge may fail to fire or operate.** No weapon system, force option, or CEW is always operational or effective. If a CEW, cartridge, or accessory is inoperable or fails to function, consider reloading and redeploying, using other force options, disengaging, or using other alternatives per agency Guidance.

SAFETY INFORMATION: OTHER HAZARDS

WARNING **Probe Recoil or Ricochet.** If your target is farther away than the length of the probe wire, or if one or more probes miss the target, the probe can recoil and bounce back to strike the user or a bystander, causing injury. Probe recoil is more likely with simulation cartridges because of the nylon probe wire used.

Always be sure your target is within range. Wear protective eyewear when deploying any CEW in training or for practice. Be sure practice targets have a firm backing that will allow the probes to stick and not bounce off and strike an unintended person, animal, or object, or continue through the backing and strike objects behind the target.

WARNING **Untethered Discharged Probe.** A discharged probe that does not impact a subject or target may become untethered from the wire and travel a significant distance causing serious injury. Always be sure your target is within range.

WARNING **Fire and Explosion Hazard.** CEW use can result in a fire or explosion when flammable gases, fumes, vapors, liquids, or materials are present. Use of a CEW in presence of fire or explosion hazard could result in death or serious injury. When possible, avoid using a CEW in known flammable hazard conditions.

A CEW can ignite explosive or flammable clothing or materials, liquids, fumes, gases, or vapors (e.g., gasoline, vapor or gas found in sewer lines or methamphetamine labs, butane-type lighters, flammable hair gels or some self-defense sprays). Do not knowingly use a CEW in the presence of any explosive or flammable substance unless the situation justifies the increased risk.

SAFETY INFORMATION: GENERAL PRECAUTIONS

WARNING **Unintentional CEW Deployment or Discharge Hazard.** Unintentional CEW activation or unexpected cartridge discharge could result in death or serious injury to the user, subject, or others.



TASER® Handheld CEW Warnings, Instructions, and Information: Law Enforcement



To reduce the risk of unintentional deployment or discharge:

1. **Avoid static electricity.** Keep cartridge away from sources of static electricity. Static electricity can cause a CEW or X26, X26P, or M26 cartridge to discharge unexpectedly, possibly resulting in serious injury.
2. **Keep body parts away from front of CEW or cartridge.** Always keep your hands and body parts away from the front of the CEW and cartridge. If the CEW discharges unexpectedly you could be injured.
3. **Avoid electronic equipment interference.** Electronic transmission equipment close to a CEW could interfere with the proper CEW operation and cause the CEW to deploy or discharge. Keep the CEW at least several inches away from other electronic equipment. Place the CEW safety switch in the down (SAFE) position whenever it is near electronic equipment, including transmitting radios and cell phones. Remember to place the CEW safety switch in the up (ARMED) position before use.
4. **Avoid dropping CEW or cartridge.** If a CEW or cartridge is dropped or damaged it may unintentionally deploy or discharge, become inoperable, or fail to function, making it unsafe for continued use. If a CEW or cartridge has been dropped or damaged refer to the procedure recommended in the current version of the TASER Training materials.

SAFETY INFORMATION: MAINTENANCE

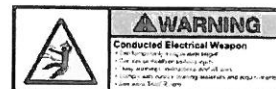
WARNING Failure to maintain a CEW as instructed may cause the CEW to malfunction or fail to function optimally, increasing the risk of death or serious injury. Follow recommended maintenance procedures.

To reduce these risks:

1. **Safely perform spark (function) test before each shift.** Testing helps verify that the CEW is functioning properly. See the current version of the TASER Training materials for further information on testing.
2. **Avoid using a damaged CEW or cartridge.** Do not use a cartridge with a missing blast door unless facing an immediate threat. CEW repair or modification by an unauthorized person may cause the CEW to fire or malfunction, will void the warranty, and may put the user or other person at risk of death or serious injury. Cartridges with blast doors that have been repaired should only be used for training and not for field use.
3. **Update CEW software.** Some CEWs have updateable software. Current CEW software may be obtained by contacting TASER's Customer Service Department or following instructions at www.evidence.com or www.TASER.com.
4. **Use only TASER-approved components, batteries, accessories, and cartridges.** The CEW is a sophisticated electronic system. For proper function, use only TASER-approved components, batteries, accessories, and cartridges with your CEW. Use of anything other than TASER-approved components, batteries, accessories, and cartridges will void the warranty, may cause malfunction, and may put the user or other person at risk of death or serious injury.
5. **Avoid exposure to wet conditions.** If the CEW is drenched or immersed in water or other liquid, **DO NOT** use or attempt to use the CEW until completing the procedure recommended by the manufacturer.
6. **Keep Smart™ cartridge contacts clean.** If the contacts on the Smart cartridge or inside the Smart cartridge bay of the X2 or X3 are not kept clean the CEW may fail to deploy the Smart cartridge.



**TASER® Handheld CEW
Warnings, Instructions, and
Information: Law Enforcement**



7. **Know CEW and cartridge expected useful life.** Under normal storage, handling, and operating conditions, a CEW and cartridges have a 5-year expected useful life. Use or attempted use of a CEW or cartridge after its expected useful life may result in malfunctions and lack of effectiveness. Failure to properly care for and maintain a CEW or cartridge may substantially reduce or eliminate the expected useful life of the product.

SAFETY INFORMATION: HAZARDOUS SUBSTANCES

WARNING **Hazardous Substances.** The CEW (including the cartridge) has components that contain chemicals known to the State of California and others to cause cancer and birth defects or other reproductive harm. Do not disassemble. Refer to your agency's Guidance for proper handling and disposal.

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(CENTRAL DIVISION)

LARRY ZUBROD, Individually and as
Administrator for the ESTATE OF MICHAEL
ZUBROD and CHERYL ZUBROD,
Individually and as Administrator for the
ESTATE OF MICHAEL ZUBROD,

Plaintiffs,

Case No. 6:15-cv-02065-LRR

vs.

SHAYNE HOCH, ISAAC SHORT, and JOHN
SMITH, in each man's individual capacity as a
Law Enforcement Officer for the Worth
County Sheriff's Office; SHERIFF JAY
LANGENBAU, in his individual capacity, and
WORTH COUNTY,

Defendants.

1 other aspects of the two individuals are the same?

2 A. I would think so.

3 Q. You would think so or you know so?

4 A. Well --

5 Q. I mean, you know that, Doctor, right?

6 A. Well, the short answer -- I understand the line of
7 questioning, but most people who use methamphetamine
8 don't die. It does put you at risk for death when you
9 use a stimulant, such as methamphetamine.

10 Most people with an enlarged heart don't die, so
11 there are millions of people walking around that have
12 enlarged hearts and they're still walking around fine.
13 Many of them probably don't even know they have an
14 enlarged heart. Mr. Zubrod's heart was maybe
15 borderline. I would say it's at the high end of normal.
16 But, clearly, once your heart does become enlarged,
17 there is an increased risk of a sudden cardiac death.
18 That doesn't mean we have an epidemic of people dropping
19 dead from enlarged hearts. Many people -- in fact, many
20 more people who have enlarged hearts die of something
21 else rather than their enlarged heart. So that's just to
22 keep things in perspective.

23 Q. Well, that's a good point. So to keep it in better
24 perspective, you use this word most. And in your answer
25 right now, you use the word most a couple times. Do you

1 have any type of definitive descriptive rate in terms of
2 what you mean by most? Again, is it 50.05 percent or 90
3 percent?

4 A. 50 million have hypertension or more in this country.
5 And with hypertension, many of these people, maybe a
6 very high percentage of those people have some degree of
7 heart enlargement. There are many others that have
8 heart enlargement who don't even know they have
9 hypertension. Yes, it is an increased risk of sudden
10 cardiac death, but it is not that everybody who has an
11 enlarged heart is dropping over because they're having
12 sudden cardiac arrest.

13 MR. PALMER: I'm going to move to strike and
14 ask that the answer be stricken.

15 BY MR. PALMER:

16 Q. Do you have any type of percentage rate for me in terms
17 of when you use the word most in terms of what that
18 means, Doctor?

19 A. I'm not sure what you mean by -- what is -- what you're
20 referring to in regards to where I said most.

21 Q. Well, you said most people that use methamphetamines
22 don't have sudden cardiac arrest. What do you mean by
23 most? Do you mean 50.05 percent? Do you mean 90
24 percent? Do you have any type of peer review study that
25 I can look at so I can have a qualitative measure in

- 1 safety comes into play, at least that's what's
2 purported.
- 3 Q. I'll stop you there. They deliver low amperage. What
4 do you mean by that?
- 5 A. Right, current through the body is considered to be low
6 current, so that's measured in amps.
- 7 Q. What's the amps that is measured when it goes through
8 the body by the use of a Taser?
- 9 A. Yes, I believe it is 19 or 20 milliamps.
- 10 Q. Do you have any basis to dispute that number?
- 11 A. I think it's variable actually in some situations.
12 There's some resistance involved, but I've been aware of
13 anywhere from say 19 to 25 milliamps.
- 14 Q. Have you ever done any testing yourself on a Taser as it
15 relates to that?
- 16 A. I have not.
- 17 Q. Are you aware of any peer review study that you can
18 point me to that says that it is different than the 19
19 to 20 amps that is said to exist by Taser?
- 20 A. I can't remember the name. I've read an article a while
21 back that talked about that the different electrical
22 specifications were not quite what Taser indicated, but
23 that was --
- 24 Q. What was the name of that article?
- 25 A. I don't recall. I could probably find it. I think

1 that's one article. I have no reason to really doubt
2 that what is purported in regards to the amperage or
3 current.

4 Q. You don't have any personal knowledge in which you could
5 disagree with it, correct?

6 A. Correct.

7 Q. Are the risks different as it relates to the use of a
8 Taser in probe mode as compared to drive stun mode?

9 A. I think so.

10 Q. Explain. How so?

11 A. Well, if you use the probe mode, that results in
12 neuromuscular incapacitation, at least hopefully that's
13 the goal, and that can put people at risk for a variety
14 of problems. Number one, depending on where the Taser
15 is used. Somebody can be in a precarious situation and
16 lose voluntary control and suffer injury.

17 In regards to the person themselves, there's some
18 fairly good animal research that talks about dart to
19 heart distance that if the probes are in close proximity
20 to the heart, that that can induce ventricular
21 fibrillation as a direct response.

22 Obviously, you can't do these types of studies on
23 humans, but there have been studies done on animals
24 which suggest that. Obviously, if you have
25 neuromuscular incapacitation for a prolonged period of

1 time, you could essentially affect the ability to
2 breathe effectively. If you have diaphragmatic
3 paralysis, again, that would involve prolonged use of
4 the Taser in probe mode. The drive stun mode is more of
5 a pain-inducing event to gain compliance.

6 Q. What are the risks associated with drive stun mode?

7 A. Well, I think the big risk associated with drive stun
8 mode is that, especially if utilized with continuous or
9 repeated application, that it causes a variety of
10 physiologic effects. It causes increased heart rate, it
11 causes increased breathing, it causes metabolic changes,
12 it causes significant pain, which is associated with a
13 variety of physiologic changes and metabolic changes,
14 and I think those things in certain people and in
15 certain situations can contribute to an individual's
16 death, in combination with other factors.

17 Q. And we'll get to all that in a lot more detail. So I
18 think you've kind of described at least what your
19 thoughts are in terms of the different risks.

20 You mention there was an animal study about if the
21 probes are in close proximity to the heart, they can
22 cause ventricular fibrillation, correct?

23 A. Correct.

24 Q. What's the name of that study?

25 A. I don't have the name of the study. Several of them,

1 drive stun injury on the right flank, which probably
2 indicates several areas of deployment. There's at least
3 three burns. He's got a probe on -- in the belt.
4 There's no suggestion of an injury underlying that, but
5 we all know that Taser can affect the body if it's in
6 proximity to the body. So I can't say that that did or
7 did not affect him. So we have to look at the physical
8 evidence on the body, and then look at the
9 circumstances.

10 Q. Okay.

11 A. He's got a successful deployment, which looks to be a
12 probe deployment on the right thigh.

13 Q. Well --

14 A. Now, how many times that resulted in an electrical
15 current is probably multiple. That is present when the
16 Taser is being drive-stunned, and it's also present with
17 additional trigger pulls, so those probes are present on
18 the body for numerous trigger pulls.

19 Q. So is it your testimony that if two probes enter the
20 body or strike a person and they're not of the distance
21 to create neuromuscular incapacitation, that they -- if
22 there is a trigger pull, it produces a drive stun
23 effect? Is that your testimony?

24 A. I didn't say it produces a drive stun effect. It just
25 produces current through the probes that are still

1 present. It may be equated to a drive stun because
2 they're in close proximity to each other, but it's not a
3 drive stun. They're probe deployment.

4 Q. Now, looking at paragraph 6 of your report, you opine
5 that Tasers are capable of causing and contributing to
6 death in persons who are under the influence of
7 stimulants, correct?

8 A. Yes.

9 Q. Are you talking about probe or drive stun mode?

10 A. Either one.

11 Q. What type of stimulants? All kinds of stimulants or
12 certain types?

13 A. Well, I'm primarily referring to methamphetamine or
14 cocaine, or those types of illegal-type stimulant
15 medication. There may be other stimulants that would be
16 a factor as well. But, obviously, we're dealing with
17 methamphetamine here.

18 Q. Okay. How much of the stimulant needs to be in the body
19 in order for the Taser to be capable of causing and
20 contributing to the death of that person? Is there a
21 certain threshold amount?

22 A. No.

23 Q. I mean, the tiniest amount, is that right?

24 A. Depending on a particular case, it could be. I mean,
25 people react differently to different levels of the

1 there's an increased risk of Taser use when somebody is
2 exhibiting signs and symptoms of methamphetamine or
3 other stimulant-type toxicity. Keeping in mind that
4 there are various physiological effects that are caused
5 by stimulants that are detrimental and there are various
6 physiologic effects that are caused by Tasers that are
7 detrimental. You combine the two and you also throw in
8 some other factors, such as exertion related to an
9 altercation, multiple application of the Taser,
10 psychiatric illness, all of these things play a role.

11 Q. Are you saying that Taser International has stated that
12 if someone is under the influence of a stimulant, that
13 the use of their Taser can cause or contribute to death?

14 A. No, I'm saying that Taser has indicated that use of the
15 Taser causes various physiologic effects and may not be
16 effective in somebody who is under the influence of
17 various drugs, that there is an increased risk of
18 multiple deployments or cumulative-type use, and that
19 these are issued by Taser in their warnings.

20 Q. Right, and that's -- and so what you're talking about is
21 drive stun, and when someone is under the influence of
22 stimulants, the drive stun, which is pain compliance,
23 may not be as successful, correct?

24 A. Correct, but there are still physiologic changes that
25 occur with --

1 changes that can occur because of the use of a Taser.

2 A. It causes significant pain, it causes increased heart
3 rate, it causes increased respiratory rate, it causes
4 increased blood pressure, it causes some metabolic
5 changes, such as release of stress hormones, epinephrine
6 and other stress-related hormones. It causes some other
7 changes in ventilatory parameters. I believe title
8 volume and some other ventilatory parameters.

9 Some people interpret these that while they exist,
10 they're not clinically significant. Causes increase to
11 lactate, decreases blood pH. Again, some people will
12 say, oh, well, it does all these things, but it's
13 unimportant. I don't see it that way. I don't see that
14 it's unimportant when you're -- when you're taking a
15 compromised gradual. When they line up police officers
16 and Tase them in the drive stun mode, those physiologic
17 changes occurred, but they're not necessarily life
18 threatening. You put it on somebody who is already
19 compromised and that's when you have the problem.

20 MR. PALMER: I want to move to strike the
21 portion of the testimony as non-responsive.

22 BY MR. PALMER:

23 Q. Okay. So I believe that we agreed that you're not aware
24 whether probe mode or drive stun mode makes more or less
25 physiological changes, correct?

- 1 Q. Can you -- does multiple mean two? Does it mean three?
2 Can you provide me a range? Can you provide me a
3 numerical value to the term multiple?
- 4 A. Multiple means more than one. I think as the number
5 increases, the risk increases.
- 6 Q. Are you saying two bursts of electrical current can
7 cause or contribute to a death of a person?
- 8 A. I think it can contribute.
- 9 Q. Okay. Now, when you say prolonged, what do you mean by
10 prolonged from a numerical perspective?
- 11 A. I mean, use of the Taser greater than one deployment,
12 that would be prolonged or multiple, cumulative.
13 Obviously, we're not really arguing whether two or
14 three, because it was clear that this man was subject to
15 many more than that.
- 16 Q. Well, you're not here to testify how many successful
17 deployments Mr. Zubrod had, correct?
- 18 A. I don't think I can give you an exact number, but it was
19 many.
- 20 Q. Okay. Well --
- 21 A. Because, again, he has the probes.
- 22 Q. Hold on. Many, once again, doesn't tell me anything.
23 You can't give me a -- I mean, because your report is
24 completely devoid of providing any type of numerical
25 range of successful deployments as it relates to Michael

1 between use of a Taser, then, more or less, you're
2 starting back at baseline.

3 Q. Now, this is a little different question, but it deals
4 with the peer-reviewed studies. Are you aware of any
5 peer-reviewed studies that differentiates the different
6 time lengths or number of Taser activations and the
7 association with the contribution to death?

8 A. I think there are some studies. I can't give you names
9 of them.

10 Q. Okay. Can you explain to me how the different time
11 links and the different numbers or the number of
12 activations could increase the risk of death in someone,
13 whether it's in probe mode or drive stun mode?

14 A. I think I went through this. There are physiologic
15 changes that occur with use of the Taser that become
16 worse following the cumulative effects.

17 Q. Okay. We talked about the cause of death and
18 Dr. Thompson's autopsy report. You would agree with me
19 that the methamphetamine was the cause of the cardiac
20 arrest, correct?

21 A. I think it was one factor among many.

22 Q. You would agree with me that it was the predominant
23 factor?

24 A. Well, I don't think you can really put a percentage on
25 each one. I don't think that the methamphetamine can be

- 1 caused by multiple factors. Do you see that?
- 2 A. Yes.
- 3 Q. Could you list for me all of these multiple factors that
- 4 you believe exist?
- 5 A. Sure. Methamphetamine use, the altercation and
- 6 restraint which involved the police, and part of that
- 7 altercation and restraint involved the use of a Taser,
- 8 his underlying psychiatric disease, and exacerbation
- 9 thereof, and his underlying heart disease, which
- 10 primarily is left ventricular hypertrophy.
- 11 Q. And the borderline enlarged heart, correct?
- 12 A. I wouldn't really make much of that, but I wouldn't
- 13 fault somebody if they felt they wanted to include that.
- 14 The left ventricular hypertrophy is really the reason
- 15 for the borderline enlargement.
- 16 Q. Anything else?
- 17 A. I don't think so.
- 18 Q. Where does the excited delirium come into play?
- 19 A. Well, the excited delirium, if you want to call it that,
- 20 is a consequence of his methamphetamine use and/or
- 21 underlying psychiatric disease.
- 22 Q. Do you disagree with an opinion that Mr. Zubrod was
- 23 exhibiting signs and symptoms of excited delirium?
- 24 A. No, I wouldn't disagree with that. I simply would --
- 25 again, it's a matter of mechanism versus cause. The

- 1 of the altercation and subduing.
- 2 Q. Okay. Now, when you say factor, is a factor a medical
- 3 term that is used by pathologists in autopsy reports?
- 4 A. I would imagine it is. Whether it's a factor or a
- 5 contributory, I mean, I'm not trying to use shady terms.
- 6 Q. I'm not saying that you are. Tell me what you mean by
- 7 factor.
- 8 A. Means it played a contributory role in the death.
- 9 Q. And tell me, when you say played a contributing role,
- 10 can you describe that more in terms of percentage or
- 11 rate?
- 12 A. No.
- 13 Q. So --
- 14 A. I'm looking at one particular case where there's a lot
- 15 of things going on that all work to increase somebody's
- 16 risk of death, and to take one out or to eliminate one
- 17 or more of these, I don't think there's a good basis to
- 18 do that, because nobody really knows the contributory
- 19 effect of each one.
- 20 Q. Okay. Including you, correct?
- 21 A. I don't know -- I don't know the percentage of each
- 22 contributory factor. I know that all of these serve to
- 23 cause a cumulative effect, which caused his cardiac or
- 24 cardiorespiratory arrest.
- 25 Q. Okay. We talked about, earlier, your opinions as it

1 relates to what a Taser does to someone, and we talked
2 about probe mode and the drive stun mode, and there's
3 these peer-reviewed articles that hopefully I'll receive
4 soon. Let me ask you this. As it relates to those
5 changes that you've listed; blood pressure, heart rate,
6 all those issues. Is there anything within this file,
7 the medical records or the autopsy report, that -- an
8 objective test or finding that shows that Mr. Zubrod's
9 changes could be caused by the use of the Taser?

10 A. Nothing was measured, so it's very difficult to single
11 out. There's nothing to indicate his heart rate went
12 up, but we all know it did.

13 Q. Right. I guess that's my point. There's nothing within
14 this file that shows that Michael Zubrod's, whether it's
15 his heart rate, his blood pressure, whether it's the
16 amount of oxygen in his system or the amount of oxygen
17 that his heart needed, there's nothing in this file that
18 we can point to that says he had these changes, correct?

19 A. There's nothing in this file that you can point to that
20 said what the effect of the methamphetamine was, the
21 Taser, the struggle, the restraint, any of it. He's not
22 being monitored. These are simply things that you would
23 know by evaluating these kinds of deaths. Plus, he's
24 obviously struggling, he's obviously sweating, he's
25 obviously exerting himself. That's pretty obvious.

1 contributed to the death of Michael Zubrod in this case?

2 A. Pain, physical stress, psychological stress, and I guess
3 that's more physical stress with increased blood
4 pressure, heart rate, respiratory rate and metabolic
5 changes that we talked about.

6 I don't think that this was a sudden cardiac
7 arrhythmia from an electrical current.

8 Q. So that's crossed out, right?

9 A. You can cross that out.

10 Q. Okay.

11 A. I don't think he was -- he suffered respiratory failure
12 from incapacitation of his diaphragm or respiratory
13 muscles.

14 Q. We can cross that out?

15 A. You can cross that out. I do think that the Taser
16 served to exacerbate his other physiologic changes that
17 certainly would have been associated with the events of
18 this situation.

19 And I've been through it, but I think I'll do it
20 again. The methamphetamine, the psychiatric disease,
21 his underlying heart, the Taser, the struggle, the
22 subduing are all cumulative.

23 Q. Now, the physiological changes, that's what I thought
24 that you were going to go through again. What changes
25 do you think he underwent because of the Taser?

1 A. I think it exacerbated his blood pressure, heart rate,
2 respiratory rate.

3 Q. Hold on. Blood pressure, heart rate, respiratory rate.
4 What else, Doctor?

5 A. Adrenaline. Obviously, it caused significant pain,
6 which also is associated with those more measurable-type
7 changes. So I think those are the primary. There are
8 many others that are associated with the use of the
9 Taser, but I don't know if they're -- they're not more
10 -- they're not that concerning in the acute phase.

11 Q. Now, you would agree with me that Michael Zubrod was
12 experiencing signs and symptoms of excited delirium
13 before the use of a Taser, correct?

14 A. I wouldn't disagree with that. Again, I would say that
15 he was showing signs and symptoms of his methamphetamine
16 use and psychiatric disease.

17 Q. But you would agree with me that he was showing signs
18 and symptoms of excited delirium before the Taser use,
19 correct?

20 A. I wouldn't disagree with somebody who said that. I
21 don't use that terminology. I go along with the
22 underlying cause. I don't just pick out a mechanism.

23 Q. Well, I mean, you did use it in the Estate of Nickolos
24 Cyrus case though, didn't you?

25 A. I do use it. I simply state that there's an underlying

- 1 studies and papers that he has authored?
- 2 A. Well, there are some studies and there are a lot of
- 3 anecdotal reports. It's very difficult to do a study of
- 4 people where you can measure certain parameters while
- 5 somebody is being actively subdued and Tasered by the
- 6 police. It's not a study that you can do, but you have
- 7 to use what you know to extrapolate what's going on in
- 8 those particular cases.
- 9 Q. Of the physiological factors that you've mentioned, the
- 10 blood pressure, heart and respiratory rate, and the
- 11 hormones causing the pain, which one or do you have an
- 12 opinion to a reasonable degree of medical certainty
- 13 which factor is the most important as it relates to
- 14 Michael Zubrod's death?
- 15 A. I've given you the ones that I think are important.
- 16 Q. Of those five, is there one that's the most important?
- 17 A. I don't think I can simply pick and choose.
- 18 Q. Why not?
- 19 A. Because they all affect the heart.
- 20 Q. Okay. I think we talked about -- yeah, we talked about
- 21 the Taser did not cause any type of cardiac arrhythmia
- 22 or capture or anything like that, correct?
- 23 A. Not direct.
- 24 Q. Well, how about in --
- 25 A. Again, as an exacerbating factor of other conditions.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF IOWA
(CENTRAL DIVISION)

1		
2		
3	LARRY ZUBROD, Individually)	
4	and as Administrator for)	
5	the ESTATE OF MICHAEL)	
6	ZUBROD and CHERYL ZUBROD,)	
7	Individually and as)	Case No.
8	Administrator for the)	6:15-cv-02065-LRR
9	ESTATE OF MICHAEL ZUBROD,)	
10		
11	Plaintiffs,)	
12		
13	vs.)	DEPOSITION OF
14		
15	SHAYNE HOCH, ISAAC SHORT,)	JOHN SMITH
16	and JOHN SMITH, in each)	
17	man's individual capacity)	
18	as a Law Enforcement)	
19	Officer for the Worth)	
20	County Sheriff's Office;)	
21	SHERIFF JAY LANGENBAU, in)	
22	his individual capacity,)	
23	and WORTH COUNTY,)	
24		
25	Defendants.)	

THE DEPOSITION OF JOHN SMITH, taken
before Brittney L. Sposeto, Certified
Shorthand Reporter of the State of Iowa,
commencing at 9:41 a.m., May 25, 2016, at the
Worth County Courthouse, Northwood, Iowa.

Reported by: Brittney L. Sposeto, CSR

1 Q. Do you know whether there was a
2 connection to Michael on that or not?

3 A. I believe there was a dart that went
4 into his belt.

5 Q. Do you know whether it would have been
6 supplemented with another barb or the barrel?

7 A. I don't recall that.

8 Q. Okay. Well, familiarize yourself with
9 it, because it looks like there were -- and
10 you can correct me if I'm wrong, but looking
11 at the log, during the twenty-third hour of
12 September 22nd, there were ten different
13 discharges from Hoch's Taser. Tell me if I'm
14 wrong on that.

15 A. Correct.

16 Q. And the burst in terms of duration, if I
17 start at the earliest one, which is at
18 23:47:35 -- do you see that on that exhibit?

19 A. Yes.

20 Q. -- that's a five-second burst; correct?

21 A. Correct.

22 Q. Then I'm just going to lead them down,
23 and tell me if I say any of them incorrectly.
24 The next one is five seconds. The next one
25 after that is five seconds. After that is

1 five seconds. After that is seven seconds.
2 After that is six seconds. After that is
3 five seconds. After that is five seconds.
4 After that is five seconds, and the final one
5 is five seconds. Do you see that?

6 A. Yes.

7 Q. It looks like there were forty seconds'
8 worth of five-second bursts if I were to add
9 them up.

10 MR. PALMER: Object to form,
11 foundation. Go ahead.

12 Q. You can correct me if I'm wrong. Does
13 that look correct --

14 A. Correct.

15 Q. -- to you? And then you take the other
16 bursts, the longer ones, there's
17 thirteen seconds of those, the seven-second
18 and the six-second; right?

19 A. Yes.

20 Q. So if you were to, you know, by simple
21 math, add those up, we get fifty-three
22 seconds of potential bursts from a Taser with
23 how much voltage? What's the voltage?

24 A. 50,000 volts.

25 Q. 50,000 volts potentially running through

1 Michael's body for fifty-three seconds
2 starting from, what is reported as, 23:47:35
3 through 23:50:50. Would you agree with that?

4 MR. PALMER: Object to form,
5 foundation. It calls for speculation. Go
6 ahead.

7 A. Yes.

8 Q. Okay. Let's put your Taser instructor
9 hat on for a moment. If you were told that
10 you had a suspect who was tased for
11 fifty-three seconds during a, you know,
12 three-minute-plus period of time, would that
13 be concerning to you?

14 MR. PALMER: Object to form, calls
15 for speculation. Go ahead.

16 A. Each situation is different.

17 Q. Okay. There are different literatures,
18 though, that give you direction on how to
19 evaluate situations; right?

20 A. Yes.

21 (Deposition Exhibit No. 5 was
22 marked for identification by the
23 reporter.)

24 BY MR. BROWN:

25 Q. I'm going to show you what's been marked

1 simultaneous exposures.

2 Q. As a Taser instructor, do you have any
3 reason to disagree with that direction or
4 that directive?

5 A. No reason to disagree.

6 Q. Did you read the physiologic and
7 metabolic effects portion?

8 A. Yes.

9 Q. Did you see the type of studies that
10 have been done regarding the use of Tasers?

11 A. What are you referring to?

12 Q. Well, specifically --

13 A. Yeah.

14 Q. -- look at paragraph numbered 1, which
15 says in bold: Minimize the number and
16 duration of CEW exposures. Do you see that?

17 A. Yep.

18 Q. And then they go on and talk about
19 studies. Do you see that?

20 A. Yes.

21 Q. There was lab testing done on humans.
22 It says the CEW lab testing has not exceeded
23 fifteen seconds of CEW application and
24 none -- most have not exceeded fifteen, and
25 none has exceeded forty-five seconds. See

1 that?

2 A. Yes.

3 Q. So far, based on what you've seen in
4 this bulletin alone, do you have any opinion
5 as a Taser instructor and a certified Taser
6 carrier as to why Taser International has not
7 performed lab testing beyond
8 forty-five seconds?

9 MR. PALMER: Object to form,
10 foundation. Go ahead.

11 A. I don't know why.

12 Q. Okay. How about speculating as to an
13 opinion? Do you know why they may not have
14 exceeded forty-five seconds?

15 MR. PALMER: Object to form, calls
16 for speculation, foundation.

17 A. No.

18 Q. Okay. How about the fact that they say
19 repeated, prolonged, or continuous CEW
20 applications may contribute to cumulative
21 exhaustion, stress, cardiac, physiologic,
22 metabolic, respiratory, and other associated
23 medical risks which increase the risk of
24 death or serious injury? Is that a
25 possibility?

CURRICULUM VITAE

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Education

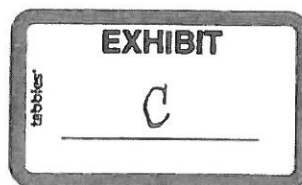
1992	M.D.	University of Iowa College of Medicine, Iowa City, Iowa
1988	B.S.	University of Iowa, Iowa City, Iowa

Post-Graduate Education

1997-1998	Fellow in Forensic Pathology	Hennepin County Medical Examiner's Office, Minneapolis, Minnesota
1993-1997	Resident in Pathology Chief Resident, 1996-1997	University of Iowa Hospitals and Clinics, Iowa City, Iowa
1992-1993	Surgical Internship	University of Iowa Hospitals and Clinics, Iowa City, Iowa

Professional Employment

2004-present	Chief Medical Examiner	Hennepin County Medical Examiner's Office, Minneapolis, Minnesota
2002-2004	Assistant Chief Medical Examiner	Hennepin County Medical Examiner's Office, Minneapolis, Minnesota
2001-2002	Chief Deputy Medical Examiner	Office of the Armed Forces Medical Examiner, Armed Forces Institute of Pathology, Washington, DC
2000-2001	Staff Pathologist	Department of Pathology, National Naval Medical Center, Bethesda, Maryland
1999-2001	Deputy Medical Examiner	Office of the Armed Forces Medical Examiner, Armed Forces Institute of Pathology, Washington, DC
1998-1999	Associate Medical Examiner	Office of the Armed Forces Medical Examiner, Armed Forces Institute of Pathology, Washington, DC



Board Certification (American Board of Pathology)

Forensic Pathology	9/19/99
Anatomic and Clinical Pathology	6/11/97

Additional Appointments

2004-present	Medical Staff	Department of Pathology, Hennepin County Medical Center, Minneapolis, Minnesota
2004-present	Assistant Professor	Department of Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, Minnesota
2008-present	Member	State of Minnesota Ombudsman Committee for Mental Health and Developmental Disabilities

Licensure

<u>State</u>	<u>Date</u>	<u>Status</u>	<u>Number</u>	<u>Renewal date</u>
Minnesota	3/97	Active	39542	7/2016
Maryland	4/99	Inactive	D0054565	-----

Professional Associations

National Association of Medical Examiners, Fellow

- Chair, Standards subcommittee, 2013-present
- Chair, Board of Directors, 2013
- President, 2012
- Vice President, 2011
- Executive Committee, 2011-2013
- Board of Directors, 2006-2013
- Membership and Credentials Committee, 2010
- Subcommittee on Position Papers, 2010
- Nominating Committee, 2010
- Strategic Planning Committee, 2010-2013, 2015-present
- Ad hoc committee on Medical Examiner independence, 2011

American Academy of Forensic Sciences, Fellow

- Executive Committee, 2016-present
- Board of Directors, 2016-present
- Chair, Forensic Science Foundation, 2016-present
- Chair, AAFS Annual Meeting Program Committee, 2015-2016
- Co-Chair, AAFS Annual Meeting Program Committee, 2014-2015
- Chair, Emerging Forensic Scientist Award Subcommittee, 2014-2016
- Trustee, Forensic Science Foundation, 2013-present
- Emerging Forensic Scientist Award Subcommittee, 2013-2014
- Chair, Continuing Education Committee, 2009-present
- Nominating Committee, 2008-2009
- Chair, Pathology/Biology section, 2007-2008
- Secretary, Pathology/Biology section, 2006-2007
- Luncheon Program Chair, 2006-2007
- Scientific Session Program Chair, Pathology/Biology section, 2004-2005

College of American Pathologists, Fellow

- Forensic Pathology Committee, 2014-present

Professional Associations (continued)

Minnesota Coroners' and Medical Examiners' Association

- Treasurer, 2007-present
- Board of Directors, 2002-present
- Vice President, October 2003-October 2004
- 2005 Annual Meeting Program Chair

Additional Affiliations

Member, Forensic Science Standards Board (FSSB), National Institute of Standards and Technology (NIST), Organization of Scientific Area Committees (OSAC), 2014-present

Editorial Board, *Academic Forensic Pathology* (The official publication of the National Association of Medical Examiners), 2011-present

- Guest editor, Volume 5 (3), published September 1, 2015

Previous Affiliations

Scientific Working Group for Disaster Victim Identification (SWGIDVI), National Institute of Justice, 2012-2014

American Board of Pathology Test Development and Advisory Committee (Forensic Pathology), 2006-2013

Innocence Project of Minnesota (<http://www.ipmn.org/>), Board of Directors, 2008-2011

Minnesota Science Standards Revision Committee, Minnesota Department of Education, 2008-2009

National Disaster Medical System Disaster Mortuary Operational Response Team (DMORT), Medical Officer (Pathology), Region V, 2003-2009

profile of a decedent in such settings in a male under 44 years of age, exhibiting bizarre behavior and abusing illicit drugs. No research exists that establishes a causal relationship between the use of conducted energy weapons (CEWs) and the deaths of subjects exposed to them (the exceptions being unusual circumstances such as fatal blunt injuries from falls during/following neuromuscular incapacitation, or ignition of a flammable liquid by the probes). Although many hypotheses have been proposed—direct cardiac capture, impaired breathing, metabolic changes, etc.—no experiments with human models have validated these hypotheses. In an animal model (sheep) specifically addressing methamphetamine intoxication, the authors found that methamphetamine intoxication was associated with both supraventricular and ventricular irritability. In small sheep, CEW exposures did exacerbate this irritability, but this did not occur in the larger sheep. There was no ventricular fibrillation after CEW exposure in any of the animals.

A 5-second exposure of a Taser X-26 to human subjects following moderately difficult exercise did not result in clinically significant changes in ventilatory or blood parameters of physiologic stress. In human studies of electrical discharge from a single Taser exposure up to 15 seconds, the effects on blood chemistries and vital signs were comparable to or less than changes expected from physical exertion similar to struggling, resistance, fighting, and fleeing. In volunteers exercised to exhaustion and then exposed to a single Taser exposure of up to 15 seconds, there was no worsening acidosis, hyperkalemia, or cardiac injury. Exposure to the Taser X-26 does not appear to worsen acidosis in exhausted, acidotic subjects differently than continued exertion.¹² A study of 30 seconds of continuous CEW chest-abdomen exposure from a Taser C2 found no clinically important cardiac, respiratory, or metabolic effects except a mild lactic acidosis. Most published studies with CEWs involve probe deployment and neuromuscular incapacitation. As noted above, there is no evidence in the available materials that Mr. Zubrod was ever subjected to successful neuromuscular incapacitation. Even if one accepted the unproven assertion that exposure to a Taser in probe-deployment mode could induce ventricular fibrillation, there is no autopsy evidence that a Taser or Taser probe was near Mr. Zubrod's heart, nor do the investigative findings indicate that Mr. Zubrod collapsed unresponsive and pulseless within seconds of a Taser exposure (as would be the mechanism of death with the sudden induction of ventricular fibrillation due to electrocution).¹³

¹² The authors (Ho et al, *Am J Emerg Med*, 2009) wrote, "Our study supports the idea that CEW use on agitated, dangerous, and exhausted individuals represents an acceptable method of control that does not appear to worsen an acidotic condition that is already present. This may represent a potentially life-saving control method when compared with other means of force such as impact weapons or firearms." Another study comparing Taser exposure to exhausted human volunteers (Ho et al, *For Sci Int*, 2009) found, "CEW exposure does not appear to worsen acidosis in exhausted subjects any differently than briefly continued exertion."

¹³ See Kunz SN et al, *J Forensic Sci*, 2012 (for example):

Mr. Zubrod was exhibiting numerous stigmata of methamphetamine-induced excited delirium syndrome (ExDS). These included¹⁵ altered sensorium, incoherent verbalizations, aggressive agitated behavior, lack of willingness to yield to police force, pain tolerance, lack of tiring, asystole¹⁶ as the presenting cardiac disturbance, death with a powerful sympathomimetic agent in the blood (methamphetamine), and no other traumatic or toxicological cause of death. The American College of Emergency Physicians Excited Delirium Task Force describes typical cases of ExDS as:

More than 95% of all published fatal cases are males with a mean age of 36. These subjects are hyperaggressive with bizarre behavior, and are impervious to pain, combative, hyperthermic and tachycardic. There is typically a struggle with law enforcement that involves physical, noxious chemical, or ECD use followed by a period of quiet and sudden death. The majority of cases involve stimulant abuse, most commonly cocaine, though methamphetamine, PCP, and LSD have also been described.

Short described Zubrod's speech as, "It was just really, really weird stuff he kept saying" (122-123), saying "die bitch, die...you're gonna die" (123-124), "making this kind of weird yelling sound" (442) and "saying some really weird, wacky things that didn't even make sense" (820). Hoch described, "... he was mumbling a lot, I couldn't understand most of what he said, but he said, he kept sayin' getcha bitch, die bitch, somethin' like that and then he kept sayin' I got ... I'm gonna keep comin', I'm gonna keep comin' ..." (91-94). Smith recalled, "Uh, a lot of gibberish. I did hear him say somethin' about a devil. Um, he was going ... he made eye contact with me at one point and said he was gonna get me. Um, a lot of nonsense" (337-339).

Short recalled, "He [Zubrod] kept talking about how he wasn't tired and how I was getting tired" (124). Hoch recalled, "I just, I remember my thought was he

See also Panescu et al (2016), which specifically models the voltage delivered to the skin in drive stun mode.

¹⁵ Hyperthermia is also a common feature of ExDs. The available medical records did not include a measurement of core body temperature in Mr. Zubrod's case. As Vilke et al note, "Hyperthermia, defined as an elevated body temperature due to failed thermoregulation, is present in many patients with ExDS but need not be present to make the diagnosis." (Vilke et al, 2012).

¹⁶ According to the Mason City Fire Department Ambulance Report, "CPR was started instantly and a cardiac monitor is applied ... monitor shows asystole in numerous leads." The report later noted, "Just prior to beginning transport pt has a sinus rhythm along with a carotid pulse. Seconds later he is again in asystole." En route to the hospital, the cardiac monitor showed some fine ventricular fibrillation. The code blue record from Mercy Hospital (Mason City) recorded only asystole.

(UNINTELLIGIBLE) PCP or somethin' I mean he had some serious strength goin' on..." (156-158).

The term ExDs is accepted by the National Association of Medical Examiners and the American College of Emergency Physicians. The majority of ExDS patients who die do so shortly after a struggle, often within minutes after cessation of the struggle. Modern medical literature shows that individuals with full-blown ExDS are medically unstable and in a rapidly declining state, and the risk of mortality remains high even with medical intervention and in the absence of restraint. In one retrospective review of 90 cases of fatal ExDS (Mash et al), 39% of deaths occurred in the ED/hospital, 31% at the scene, 16% during EMS transport, and 14% during police transport; decedents dying in the hospital succumbed to rhabdomyolysis and multisystem organ failure within two days. In another retrospective review, approximately 2/3 of ExDS deaths occurred within one hour of initial contact with police (Ross, 1998).

In summary, I agree with the death certificate conclusions regarding Michael Zubrod's cause and manner of death, with the addition of left ventricular hypertrophy and borderline cardiomegaly as contributing conditions. Except for being part of the overall milieu of an intense struggle with law enforcement during subdual, there is no particular reason to single out Taser use as a contributing factor in Mr. Zubrod's death, any more than Mr. Zubrod's violent exertion or contact with officers and the injuries incurred. As the National Institute of Justice study of deaths following electromuscular disruption states, "In general, the stress of receiving CED [conducted energy device] discharge(s) should be considered to be of a magnitude that is comparable to the stress of other components of subdual. All aspects of an altercation (including verbal altercation, physical struggle or physical restraint) constitute stress that may heighten the risk of sudden death in individuals who have pre-existing cardiac or other significant disease." None of the Taser discharges attempted in the subdual of Mr. Zubrod were probe spreads with successful neuromuscular incapacitation.

Mr. Zubrod died of his self-induced acute methamphetamine toxicity, complicated by methamphetamine-induced excited delirium. His underlying cardiac conditions, described above, were significant contributing conditions that merited inclusion on the death certificate. Other than being part of the overall "altercation with police," there is no *medical basis* to single out the use of a Taser as a causal or contributing condition in Mr. Zubrod's death. Had the Taser(s) not been used (or their use discontinued far earlier in the struggle), and an ongoing struggle ensued—with or without additional law enforcement tactics to achieve compliance and gain control of Mr. Zubrod—there is no reason to believe the outcome would have been different. Conversely, in the absence of Mr. Zubrod's methamphetamine use, there is no medical basis to believe that Mr. Zubrod likely would have died following his confrontation (including a physical struggle and Taser use) with the deputies.

contact with the subject during a drive-stun deployment attempt, there will be an X26 ECD download recording of the discharge, despite there not being any actual delivered charge being applied to the subject. Thus, just because the TASER ECD download recorded a trigger pull, does not mean that the TASER ECD was indeed in contact with the subject and delivering the electrical stimulus.

There are no peer-reviewed published scientific or medical literature that concludes that TASER ECDs cause cardiac dysrhythmias or cardiac arrest in humans utilized in the probe mode away from the chest transcardiac axis. More than 1.5 million volunteer subjects have undergone TASER ECD activations, and none have ever been reported to develop sudden cardiac arrest or die. Just because a TASER ECD was being used in proximity to his death, does not imply causation.

The TASER ECD data download from Deputy Smith's devices shows four trigger pulls over a 13 second time period. The total time from the trigger pulls was 10 seconds of activation time (3, 1, 1, and 5 seconds each). The TASER ECD data download from Deputy Hoch's devices shows ten trigger pulls over a 3 minute and 20 second time period. The total time from the trigger pulls was 53 seconds of activation time (5, 5, 5, 5, 7, 6, 5, 5, 5, and 5 seconds each). As noted previously, in order for an ECD to deliver a charge to the person the electrical circuit must be completed and maintained. Thus, as a point of clarification, just because the TASER ECD download recorded 10 seconds of activation time from one TASER ECD and 53 seconds from another, does not mean that the TASER ECD was indeed in contact with the subject and delivering the electrical stimulus for that amount of time.

Often with moving, squirming, rolling and kicking, the contact of the device to the skin is disrupted. Deputy Smith's device was not functioning correctly and there was no appreciable impact on Mr. Zubrod, implying that there was not conduction of energy. With Deputy Hoch's device, the initial probe mode also did not have an effect, which based on the time stamps was likely the first 5 second trigger pull. He then removed the cartridge and switched to drive stun,

ENDOCRINE SYSTEM: The pituitary, thyroid, and adrenal glands are unremarkable.

MUSCULOSKELETAL SYSTEM: The bony framework, supporting musculature, and soft tissues are not unusual.

OPINION

This 39-year-old Caucasian male, Michael Zubrod, died of cardiac arrhythmia following an altercation with police in the setting of acute methamphetamine intoxication. Dysplasia of intramural coronary arteries was also a significant condition.

According to investigative reports, the decedent became unresponsive following an altercation with police, which included the use of a conducted energy device around midnight on September 23, 2013. The decedent was transported to a local hospital, where death was pronounced on September 23, 2013, at 1:17 a.m. A police officer was summoned to the home of the decedent's girlfriend when local residents heard screams coming from a house. When the police officer entered the girlfriend's residence, the decedent was striking his girlfriend with a hammer and then scissors. An altercation then ensued between the decedent and the officer during which time the police officer attempted to take the decedent. Two additional police officers also arrived at the girlfriend's residence and were also involved in an altercation with the decedent. Both of the officers also attempted to take the decedent. During the altercation with police, the decedent attempted to strike the officers with what appeared to be a curtain rod. The decedent was eventually handcuffed and his legs were placed in shackles. A short time later, the decedent was found to be unresponsive.

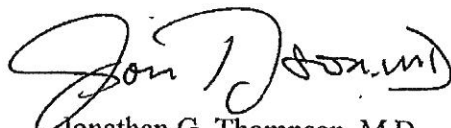
Autopsy demonstrated evidence of injury by a conducted energy device, which included two puncture wounds on the lateral right thigh. There was also a single puncture wound on the posterior left arm and small (0.2 cm) circular burn-type injuries on the lateral right abdomen consistent with injuries secondary to a conductive energy device. A conducted energy device prong pierced the belt but did not come into contact with the skin of the abdomen. Multiple blunt force cutaneous injuries were also present. Examination of the heart showed dysplasia of the intramural coronary arteries associated with increased fibrosis in the crest of ventricular septum. The brain was unremarkable. The right lobe of the liver had a benign mass consistent with focal nodular hyperplasia. The appendix was remotely surgically absent.

Toxicological analysis of antemortem serum/plasma detected methamphetamine and methamphetamine metabolite (amphetamine), as well as naloxone. The urine drug screen for bath salts and synthetic cannabinoid metabolites was negative. The presence of naloxone was likely secondary to medical intervention.

Page 10 of 10
Case No. 13SME516

Because the death followed an altercation with other individuals, the manner is best certified as homicide. The role the conducted energy device (Taser) played in the death is unknown.

The manner of death is **HOMICIDE**.

A handwritten signature in black ink, appearing to read "Jon Thompson", written in a cursive style.

Jonathan G. Thompson, M.D.
Associate State Medical Examiner

JGT/ch

DANIEL JOSEPH SPITZ, M.D.

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PERSONAL DATA

Married with Three Children

EDUCATION

1991 - 1995	Wayne State University School of Medicine Detroit, Michigan Degree: Doctor of Medicine
1987 - 1991	Albion College Albion, Michigan Degree: Bachelor of Arts Major: Biology
August - December 1989	Tulane University New Orleans, Louisiana (Semester Program)

POSTGRADUATE TRAINING

2000 - 2001	Forensic Pathology Fellow, Office of the Medical Examiner Miami-Dade County, Florida
1996 - 2000	Resident, Department of Pathology (Anatomic & Clinical Pathology) Rush Presbyterian-St. Luke's Medical Center Chicago, Illinois
1995 - 1996	Surgical Internship, Department of General Surgery Rush Presbyterian-St. Luke's Medical Center Chicago, Illinois

BOARD CERTIFICATION

November 2001	American Board of Pathology, Forensic Pathology
September 2000	American Board of Pathology, Anatomic Pathology & Clinical Pathology
September 1997	National Board of Medical Examiners

ACCREDITATION

June, 2014 - Present	Full Accreditation, National Association of Medical Examiners (NAME) Macomb County Medical Examiner's Office Macomb County, Michigan
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CURRENT MEDICAL EXAMINER and ACADEMIC APPOINTMENTS

2012 - Present	Chief Medical Examiner & Administrator/Director Office of the Medical Examiner Macomb County, Michigan
2004 - 2012	Chief Medical Examiner, Office of the Medical Examiner Macomb County, Michigan
2006 - Present	Chief Medical Examiner, Office of the Medical Examiner St. Clair County, Michigan